STATE OF MICHIGAN
DEPARTMENT OF COMMUNITY HEALTH
LANSING

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GOVERNOR

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MEMORANDUM

DATE: November 8, 2005

TO: Long Term Care Facilities

FROM: MDCH/Clinical Advisory Panel
Quality Improvement Nurse Consultants

RE: Process Guideline for Maintaining Hydration and Electrolyte Balance

Overview

Best clinical practice is only worthwhile to the extent that we use it to guide care for our residents.

Collaboratively, we are striving to improve the hydration status and electrolyte balance of nursing home residents in Michigan. The purpose of the Guide is to clarify how to apply the **Documentation Checklist: Process Guideline for Maintaining Hydration and Electrolyte Balance.** Electronic copies are available for reprint at www.michigan.gov/qinc. Click on the Best Practices once you've reached the website.

This optional "best practice" tool was presented to you at the Fall 2005 Joint Provider/Surveyor Training on October 25, 2005. Effective date for usage of the tool will be **November 8, 2005.** Both facilities and surveyors will have the opportunity to use the Documentation Checklist when a resident's hydration and electrolyte balance is a concern. Facilities will be accorded the opportunity to demonstrate that they have followed the steps in this guideline, as evidence to support an appropriate care process related to maintaining hydration and electrolyte balance.

A workgroup including doctors, nurses, a nursing assistant, dieticians, a dietary manager, and a pharmacist discussed geriatric hydration and electrolyte balance in depth. They used generally accepted, current references about geriatric nutrition to help prepare the Process Guideline. The Documentation Checklist contains a series of steps related to maintaining hydration and electrolyte balance.

Best clinical practice information helps each facility provide the best possible care throughout the year. Along with information in the Federal OBRA regulations, our surveyors will use these Process Guidelines to review how your facility is managing concerns related to hydration and electrolyte imbalance. We encourage you to examine your process to maintain hydration and electrolyte balance and to consider the application of the following information.

The Basic Care Process

The management of all conditions and problems in a nursing home should follow the steps included in the basic care process. We have utilized the terminology **staff and practitioner** throughout the guideline to designate responsibility for care. For the purpose of clarification the term **practitioner refers to a physician or their designee** (e.g. physician assistant, clinical nurse practitioner, etc.) **that has the authority to write medical "orders."**

Assessment/recognition. The purpose of this step is to provide a rational basis for deciding whether there is a need, risk, or problem and what to do about it. The facility's staff and practitioners collect relevant information about resident (history, signs and symptoms, known medical conditions, personal habits, and patterns, etc.) and then a) evaluate and organize that information to identify whether the individual has a specific need, condition, or problem; and b) describe and define the nature (onset, duration, frequency, etc.) of the risk, condition, or problem.

Diagnosis/cause identification. The facility's staff and practitioners attempt to identify causes of a condition or problem, or explain why causes cannot or should not be identified.

Treatment/management. The facility's staff and practitioners use the above information to decide how to manage a resident's condition, symptom, or situation. Where causes may be identifiable and correctable, they seek and address them or explain why they could or should not have done so.

Monitoring. The facility's staff and practitioners evaluate the individual's progress over time in relation to a risk, need, problem, condition, or symptom; consider the effectiveness of interventions; and make a systematic determination about what to do next.

MAINTAINING HYDRATION AND ELECTROLYTE BALANCE

CARE PROCESS STEP	EXPECTATIONS	RATIONALE
RECOGNITION/ASSESSMENT		
- Did the staff review and define the individual's hydration status?	- The staff should review and define each resident's hydration status, using a consistent protocol (for example, see AMDA Dehydration and Fluid Maintenance CPG, p. 11, Table 6). - When the staff and practitioner identify situations where an individual's hydration is at risk or may be impaired, they should seek additional information such as current or subsequent changes in food or fluid intake, level of consciousness, mental status, or urine output, or rapid or sudden changes in body weight.	- Impaired hydration, or risk for it, is common among residents of long-term care facilities. - Hydration issues can be identified and addressed successfully by using a systematic approach. - No physical signs and symptoms are sufficiently reliable (sensitive or specific) indicators of impaired hydration. - Staff should not rely excessively on signs of advanced dehydration such as sunken eyes and tenting of skin. - Clinical observation of hydration status--unlike nutritional status--may not suffice, and adequate recognition of hydration management may require lab tests. - Weight, especially short-term or rapid weight change, can be a helpful indicator of hydration status. - For hydration, the amount and rate of weight change are relevant (1 liter of fluid = 1kg = 2.2 pounds). - Intake measurements can be fairly accurate and helpful, but output measurements are not as reliable.
- Did the staff and/or practitioner identify existing fluid and electrolyte imbalance?	- The staff and practitioner should identify impaired hydration and any effects (lethargy, change in function, altered mental status, etc.) of existing fluid and electrolyte imbalance. - If the staff suspect impaired hydration, they should notify a physician within 24 hours to help evaluate the situation. - The staff and practitioner should consider fluid and	- In some individuals, signs and symptoms of fluid and electrolyte imbalance are nonspecific and may resemble those caused by other conditions such as adverse drug reactions (ADRs) and acute infections. - Fluid and electrolyte imbalance should be considered when nonspecific condition changes including lethargy, falls, anorexia, etc. are not readily explained by other

	electrolyte imbalance when a significant condition change occurred that could not be readily explained by another cause. - The practitioner should order appropriate laboratory evaluation, including BUN, creatinine, electrolytes and other relevant tests (see AMDA Dehydration and Fluid Maintenance CPG, p. 15, Table 11). Testing may need to be done rapidly if there is an acute change of condition or if significant fluid and electrolyte imbalance is suspected. - In someone with suspected or confirmed fluid and electrolyte imbalance, the practitioner and staff should clarify the type of imbalance as follows: 1) primarily fluid deficit; 2) primarily sodium deficit; 3) combined water and sodium deficit; 4) excess water retention or intake; or 5) excess water and salt retention. Alternatively, the physician should explain why it was not possible or relevant to identify the nature of the problem (see AMDA Dehydration and Fluid Maintenance CPG, p. 13, Table 8).	conditions or do not respond readily to interventions aimed at other presumed diagnoses. - Lab tests (especially electrolytes, BUN and creatinine; possibly others such as serum osmolality or urine sodium) are an essential supplement to any physical evidence to assess fluid balance. - Correct classification of a fluid and electrolyte imbalance is the basis for choosing the correct treatment.
- Did the staff and/or practitioner identify risk factors for developing fluid and electrolyte imbalance?	- The staff and practitioner should identify the individual's risk for subsequent fluid and electrolyte imbalance, including impaired ability to take adequate fluids without assistance. - The facility should be able to explain the basis for any conclusions that risk factors could not or should not be identified or addressed.	- Many situations or factors can affect hydration risk, including persistent vomiting, diarrhea, fever, infection taking diuretics and ACE inhibitors, delirium, dementia, depression, and functional impairments. - Some risk factors are temporary while others are enduring.
DIAGNOSIS/CAUSE IDENTIFICATION		
- Did the staff and/or practitioner evaluate likely cause(s) of fluid and electrolyte imbalance?	- The practitioner and staff should attempt to identify causes of fluid and electrolyte imbalance, relative to the following categories: 1) inadequate intake (e.g., dysphagia, dementia, delirium, impaired ability to take food without assistance); 2) excessive loss (e.g., diarrhea, fever, diuretics); 3) impairment of the body's ability to balance and manage fluids/electrolytes (e.g., renal failure; heart failure; cerebrovascular accident;	- Many causes of fluid and electrolyte imbalance and hydration risk can be addressed, at least partially, while others may not be modifiable. - Fluid and electrolyte imbalance is a common cause of rapid or short-term weight loss and acute symptoms, and constitutes a medical issue that requires a health care practitioner's involvement.

	syndrome of inappropriate antidiuretic hormone secretion; diuretics, ACE inhibitors, and other medications); and 4) combinations of the above. - The staff and practitioner should recognize and evaluate fluid and electrolyte imbalance as a possible indicator of an underlying problem (e.g., adverse drug reaction, infection, etc.). - Alternatively, the staff and practitioner should document why causes of fluid and electrolyte imbalance could not be or should not have been sought.	
- Did the staff and practitioner evaluate relevant information and provide a clinically pertinent basis for their conclusions?	- In order to identify the urgency of interventions, the staff and practitioner should characterize an individual's fluid and electrolyte imbalance as mild, moderate, or severe based on pertinent information including lab tests and other relevant criteria (see AMDA Dehydration and Fluid Maintenance CPG (p. 10, Table 5). - The staff and practitioner should identify end-stage, terminal, or other untreatable conditions affecting fluid intake and hydration status, and document factors (for example, end-of-life situation) that are felt to make it difficult or inappropriate to try to maintain or improve hydration balance.	- The facility should involve health care practitioners who can evaluate complex evidence, perform a differential diagnosis, and clarify the nature, severity, and causes of any fluid and electrolyte imbalance.
TREATMENT/MANAGEMENT		
- Did the staff provide or assist with necessary hydration?	- The staff should ensure access to hydration for all individuals (permit or offer access to at least approximately 1,500 cc/day or another amount based on individual documented needs or condition) and should provide, or assist with, hydration for those who cannot obtain it independently. - For those with fluid and electrolyte imbalance, the staff and practitioner should provide interventions based on the nature, severity, and causes of fluid and electrolyte imbalance or risk and the impact of fluid and electrolyte imbalance on an	- Significant fluid and electrolyte imbalance should be corrected in a time frame consistent with the severity and nature of the problem. - Dietary restrictions, therapeutic diets, and modified consistency diets may be unnecessary, may inhibit adequate fluid intake and may not be consistent with the resident's wishes or goals. - Offering access to fluids should be based on an individualized assessment of fluid needs, and does not

	individual's function and quality of life. - The staff and practitioner should review the resident's condition, needs, wishes, values, goals, and prognosis, and identify and provide consistent interventions. This includes decisions about possibly altering fluid consistency (i.e., thickened liquids).	necessarily mean pushing fluids on individuals who decline them beyond a certain amount, or whose hydration status remains stable on a lesser daily fluid intake.
- Did the staff and practitioner address underlying causes of fluid and electrolyte imbalance?	- The staff and practitioner should manage identified factors causing or contributing to fluid and electrolyte imbalance; for example, medical conditions or medications causing lethargy and confusion leading to decreased fluid intake. - The staff and practitioner should consider the feasibility of managing each significant identified risk factor regardless of how many there are or any total scores on an aggregate risk scale. - The staff and practitioner should manage significant fluid and electrolyte imbalances consistent with the nature, causes, and severity, OR document why likely causes could not or should not be addressed (for example, terminal condition). - The staff and practitioner should address medications known to affect fluid and electrolyte balance, appetite, level of consciousness, and other factors directly or indirectly affecting fluid and electrolyte status, OR provide clinically valid reasons why those medications could not be changed. - The staff and practitioner should document the basis for 1) any conclusions that the individual should not receive aggressive rehydration or management of significant fluid and electrolyte imbalance; for example, a terminal condition or wishes stated in advance directives; and 2) decisions not to modify medications known to be associated directly with significant fluid and electrolyte imbalance or indirectly by causing anorexia, changes in mentation and level of consciousness, etc.	- Interventions may relate to diverse causes, including need for assistance to obtain fluids, reduction of medication side effects, or implementing other relevant alternatives based on an individual's specific situation and causes of insufficient fluid intake. - Diverse medications can cause anorexia or symptoms such as lethargy or confusion that can lead to or exacerbate fluid and electrolyte imbalance. (Please cross-reference table #6 in Altered Nutritional Status CPG.) - When someone has a significant fluid and electrolyte imbalance, the problems for which other medications were instituted are often less important in the short-term than the immediate issue of correcting fluid and electrolyte imbalance and maintaining adequate hydration.

MONITORING		
- Did the staff and/or practitioner review and adjust interventions based on appropriate rationale?	- The staff should evaluate the effectiveness of any interventions to manage fluid and electrolyte balance or correct imbalances; for example, analysis of blood work, calculation of fluid deficits, or subsequent changes in mentation or function. - The staff should document the basis for deciding to maintain, adjust, or stop interventions related to hydration status and the causes of fluid and electrolyte imbalance.	- Subsequent adjustment of interventions will depend on progress, underlying causes, overall condition, prognosis, etc. - Unmodifiable conditions and circumstances may impede or preclude improved or stabilized hydration status, and should be noted. - Despite divergent views on the topic, decisions about the use of artificial hydration should be made in conjunction with the resident and/or appropriate substitute decision maker. Depending on a person's wishes, prognosis, and so on, it remains both ethically and medically acceptable to not use artificial hydration, especially for those who are in end-of-life situations.
- Did the staff and/or practitioner monitor the subsequent course of impaired hydration or other significant fluid and electrolyte imbalance or risk?	- The staff should document ongoing monitoring of individuals who have had previous episodes of fluid and electrolyte imbalance and who continue to have risks for fluid and electrolyte imbalance.	- "Monitoring" means that the facility's staff seeks evidence of subsequent changes in food and fluid intake, level of consciousness, function, body weight, blood chemistries, etc. that enable conclusions about a person's hydration status and electrolyte balance and the subsequent adjustment of interventions. - Lab testing may be helpful, in addition to other approaches to try and clarify current hydration status.

Table 5
Characterizing the Severity of Fluid/Electrolyte Imbalance

Mild: Some deficits or abnormalities in laboratory values exist, but they do not seriously impair the patient's circulation, organ function, or level of functioning. Examples:

- Marginally elevated blood urea nitrogen (BUN) or high or low sodium in a patient taking diuretics
- Increased thirst in a patient who has had diarrhea for two days but is still drinking adequate amounts of fluid

Moderate: Some deficits or lab abnormalities exist that impair or are likely to impair circulation or organ function but are not immediately life threatening. Example:

- Mildly increased lethargy or confusion or decrease in blood pressure in a patient with a sodium level of 155 mEq/L whose consumption of food and fluids is reduced as a result of influenza

Severe: Deficits or abnormalities causing significant, life-threatening risks or problems with circulation, organ function, or activities of daily living. Example:

- Rapid recent BUN elevation to >100 mg/dl in a patient whose BUN was normal a month ago.
- Rapidly increase lethargy and confusion in a patient with a recent illness whose sodium is now 123 mEg/L or who is hypotensive

Table 6
Conditions and Factors That May Increase Risk for Dehydration or Fluid/Electrolyte Imbalance

Clinical Conditions

- Dementia or cognitive impairment
- Fever (including low-grade fever)
- Diarrhea
- Vomiting
- Dependence on staff for eating and drinking
- Use of medications that can cause dehydration (e.g., diuretics, phenytoin, lithium, laxatives)
- Draining wounds or pressure ulcers
- Excessive sweating
- Rapid breathing
- Gastrointestinal bleeding
- Previous episodes of dehydration
- Difficult or painful swallowing
- Depression
- Small amount of dark or concentrated urine
- Excessive urination
- Nothing-by-mouth or fluid-restriction orders
- Chronic comorbidities (e.g. stroke, diabetes, congestive heart failure)
- Infection
- Dizziness

Environmental Factors

- Tube feeding
- Use of specialty beds
- Lack of social or family support
- Inadequate staffing
- Language barriers
- Isolation
- Restraints
- Facility-specific factors that may expose patients to excessive heat (e.g. malfunctioning air conditioners)

Table 8
Identifying the Nature of a Fluid/Electrolyte Imbalance

- ***Primarily fluid deficit (hypertonic dehydration):*** More water than salt is being lost (e.g., because of excess diuretic use, infections, fever, or diabetes insipidus).
- ***Primarily sodium deficit (hypotonic dehydration):*** More salt than water is being lost (e.g., because of diuretics or salt-wasting renal disease).
- ***Combined water and sodium deficit (isotonic dehydration):*** Both salt and water are lost proportionately (e.g., because of diuretics or severe or prolonged diarrhea or vomiting).
- ***Excess water retention or intake:*** Water is retained inappropriately (e.g., because of syndrome of inappropriate antidiuretic hormone secretion) or excess free water is ingested to correct isotonic fluid loss.
- ***Excess water and salt retention:*** Both water and salt are retained inappropriately (e.g., because of heart or liver failure).

AMDA Dehydration and Fluid Maintenance Clinical Practice Guideline 2001

Table 11
Laboratory Tests That May Help to Characterize the Nature and Severity of Fluid/Electrolyte Imbalance

- ***Highly recommended:*** sodium, potassium, chloride, bicarbonate (electrolytes), BUN, creatinine
- ***Recommended:*** calcium, glucose, hemoglobin, hematocrit, serum osmolality
- ***Optional***: urinalysis, urine sodium, urine osmolality

AMDA Dehydration and Fluid Maintenance Clinical Practice Guideline 2001

Documentation Checklist: Process Guideline for Maintaining Hydration and Electrolyte Balance

November 8, 2005

Resident:_____ Date:_____

If a concern related to maintaining hydration and electrolyte balance is triggered during the survey process, the facility will be given the opportunity to demonstrate that it has followed the steps in this checklist, as evidence to support an appropriate care process related to maintaining hydration and electrolyte balance. Evidence of an appropriate care process will be considered in determining whether an adverse event (a negative outcome), or the potential for an adverse event, related to maintaining hydration and electrolyte balance can be attributed to a deficient facility practice. If attributable to a preventable (avoidable) deficient facility practice, this checklist may also be used in analyzing the severity of the deficiency, if a citation should result.

F- tags, which could be associated with maintaining hydration and electrolyte balance concerns, are provided within the checklist. Other tags may also be appropriate.

DOCUMENTATION CHECKLIST: Process Guideline for Maintaining Hydration and Electrolyte Balance

November 8, 2005

	Yes	No	N/A
ASSESSMENT/PROBLEM RECOGNITION: May relate to F Tags: F272 (Assessment), F327 (Hydration maintenance)			
1. Did the staff review and define the individual's hydration status?			
2. Did the staff and practitioner identify existing fluid and electrolyte imbalance?			
3. Did the staff and practitioner identify risk factors for developing fluid and electrolyte imbalance?			
DIAGNOSIS/CAUSE IDENTIFICATION: May relate to F Tags: F 327 (Hydration maintenance), F386 (Physician review of total plan of care)			
4. Did the staff and practitioner evaluate likely cause(s) of fluid and electrolyte imbalance?			
5. Did the staff and practitioner evaluate relevant information and provide a clinically pertinent basis for their conclusions?			
TREATMENT/PROBLEM MANAGEMENT: May relate to F Tags: F279/280 (Comprehensive Care Plans), F 327 (Hydration maintenance), F 386 (Physician review of total plan of care)			
. 6. Did the staff provide or assist with necessary hydration?			
7. Did the staff and practitioner address underlying causes of fluid and electrolyte imbalance?			
MONITORING: May relate to F Tags: F272 (Assessment), F 327 (Hydration maintenance)			
8. Did the staff and practitioner review and adjust interventions based on appropriate rationale?			
9. Did the staff and practitioner monitor the subsequent course of impaired hydration or other significant fluid electrolyte imbalance or risk?			

_____ _____

Signature of person completing the form